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EXAMINER	
LE, DINH THANH	

ART UNIT	PAPER NUMBER
2816	

DATE MAILED: 06/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/726,166	MALCOLM H. SMITH	
	Examiner	Art Unit	
	DINH T. LE	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-35 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-35 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 7/26/04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections

Claim Rejections - 35 USC § 112

Claim 33-35 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is not understood what the "instructions" on line 2 are and how they can be execute by a computing platform to sense a voltage across a resistor to sink or source additional current or provide a pole for a filter since the present invention does not show the detailed structure of the instructions and the platform or disclose how the instructions can communicate with a resistor and current source to perform the reciting functions. Correction or clarification is required.

Claims 1-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Correction or clarification is required.

In claim 1, it is unclear what the "series-feedback path" is and how it can be feedback since it is not connected to anything. The description of the present invention is incomplete because claimed filter does not have an input/output. Thus, the claimed filter may not perform the recited function. The same is true for claims 10, 18, 24 and 30.

In claim 7, it is unclear where the "voltage controlled oscillator" comes from. The same is true for claim 8 for reciting "voltage controlled oscillator" and "charge pump".

In claim 8, the recitation "pulses." on line 4 is confusing because is unclear if this is additional "pulses" or further recitation of the previously claimed "pulses" on line 1 of claim 3.

In claim 9, it is unclear how the recitation "filter network" is read on the preferred embodiment. Insofar as understood, no such network is seen on the drawings.

In claim 10, the recitation "series-feedback path" is confusing because it is unclear if this is additional "path" or a further recitation of the previously claimed "feedback path". The same is true for reciting "receiving " and "pulses" on line 1 of claim 16-17.

In claim 25, it is unclear how the amplifier can be "referenced" to a reference voltage on line 9.

In claim 26, it is not understood how the "reference frequency signal comprises a radio frequency signal for converting received radio frequency signals to signals of substantially zero frequency" and how this limitation is read on the preferred embodiment or seen on the drawings.

In claim 27, it is not understood how the local oscillator frequency can "down-convert" the radio frequency signal since the frequency can not perform the down converting function and how this limitation is read on the preferred embodiment or seen on the drawings.

In claim 30, the recitation "the received signals" on line 5 lacks clear antecedent basis.

In claim 33, it is not understood what the "article", "instructions", "computing platform" and "result" are how the platform can execute the instructions to have the result of sensing a voltage and providing a pole, where the resistor, the filter and the capacitor come from and how this limitation is read on the preferred embodiment. Insofar as understood, no such limitation is seen on the drawings. The same is true for claims 34-35.

The remaining claims are dependent from the above claims and therefore also considered indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7-8, 15-16 and 33-35 are rejected under 35 USC 102 (b) as being anticipated by Badger (US 5,686,866).

As the best construed, Badger discloses in Figures 1-4 a filter circuit comprising:

- a capacitor (18) and a resistor (20) in a series-feedback path; and
- a transconductor (Q1, Q2, 36) to sense a voltage across the resistor (2) to either source or sink additional current proportional to the voltage.
- With regard to claim 2, the transconductor (Q1, Q2, 36) and the capacitor (18) provide a larger capacitance than the capacitor (18) alone since they provides an additional sinking/sourcing current in the feedback loop.
- With regard to claim 3, an amplifier (16) receiving pulses from the phase detector (34) and the filter integrates the pulses to generate a control voltage to a VCO (!2) as shown in Figure 1.

- With regard to claim 4, the resistor (20) provides a zero and the capacitance provide a pole for the filter since this filter is the low pass filter.

- With regard to claim 7, the recitation "voltage control oscillator" is read on the oscillator (12) in Figure 1.

- With regard to claim 16, the tuning signal at terminal (17) from the phase detector (34) is a pulse signal which is integrated by the filter circuit to generate a tuning voltage related to the width of the pulse signal.

Claim Rejections - 35 USC.§ 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5-6, 9 and 17-23 are rejected under 35 USC 103 (a) as being unpatentable over Badger (US 5,686,866) in view of Victor Co (JP09294051A) and further in view of Fan (US 6,693,494).

Badger discloses in Figure 4 a PLL circuit comprising all of the limitations of the claimed invention as stated above but does not disclose a second capacitor in a parallel feedback path as recited in claims 5-6 and 21, the filter network at an output of the amplifier to provide a higher frequency pole as recited in claim 9, the charge pump circuit as recited in claim 17 and the divide by fractional N circuitry as recited in claim 22.

Victor CO teaches in Figure 4 a loop filter comprising a second capacitor (C2) coupled in parallel to a series of a resistor (R2) and a capacitor (C1) for increasing the number pole of the filter to increase the attenuation within the roll-off region of the filter.

Fan teaches in Figure 1 a PLL circuit comprising a charge pump (4) placed before a filter (5) for providing source current and sink current to adjust the frequency of a VCO (2), the filter having additional filter network (R3, C3) for forming a three pole filter that would increase attenuation within the roll-off region, and a fractional divider (6) for providing a fractional N synthesizer, see lines 50-52, column 1.

It would have been obvious to a person having skill in the art at the time the invention was made to employ a second parallel capacitor as suggested by Victor CO in the circuit of Badger et al for increasing the attenuation in the roll-off region.

It would have been obvious to employ the additional filter network, the charge pump circuit and the fractional divider taught by Fan in the PLL circuit of Badger for the purpose of increasing the attenuation in the roll-off region of the filter, providing source and sink currents to adjust the VCO frequency and forming a fractional N synthesizer.

Claims 24-32 are rejected under 35 USC 103(a) as being unpatentable over Gillig et al (US 5,424,689) in view of Badger (US 5,686,866).

Gillig et al discloses a communication circuit in Figures 3-4 comprising:

- a frequency synthesizer (308), as shown in Figure 4, having a charge pump (411) and a filter (419) for generating a reference frequency; and
- a tranceiver received a radio frequency signals ((311) and the reference frequency; said the

transceiver including a unmarked receiver and an unmarked transmitter.

However, Gillig does not disclose that the filter (419) comprising all of the limitations of claim 1.

Badger teaches a PLL circuit comprising a filter circuit having all of the limitations of claim 1 as stated above for providing large frequency changes, see lines 15-20, column 3. It would have been obvious to a person having skill in the art at the time the invention was made to employ the filter circuit taught by Badger in the circuit of Gillig et al for the purpose of providing large frequency changes.

With regard to claims 26-29, although Gillig et al does not specify the type of receiver and transmitter; however, the receiver types such as direct down conversion receiver or superheterodyne receiver and the transmitter type such as polar transmitter or the digital transceiver are well known in the art. Thus, selecting the transceiver type for a particular application is considered to be a matter of a design expedient depending upon an application. Lacking of showing any criticality, selecting the transceiver type for the circuit of Gillig et al for accommodating with a predetermined system would have been obvious at the time of the invention.

Allowable Subject Matter

Claims 10-14 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action. The claims are allowed because the prior art does not show the current mirror in a feedback path of the amplifier to source

or sink additional current.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DINH T. LE whose telephone number is (571) 272-1745. The examiner can normally be reached on Monday-Friday (8AM-7PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TIMOTHY CALLAHAN can be reached at (571) 272-1740.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DINH T. LE
PRIMARY EXAMINER